SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: August 23, 2023

SECTION 1: Identification

1.1 GHS Product identifier

Product name Methyl Methacrylate

1.2 Other means of identification

Product number 80-62-6
Other names 2-Propenoic acid, 2-methyl-, methyl ester; 2-Propenoicacid, 2-methyl-, methyl ester; Methyl methacrylate

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company Zhongshan Greenrock Technology Co., Ltd.
Address Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone +86-2087066781

1.5 Emergency phone number

Emergency phone number +86-2087066781
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2
Skin irritation, Category 2
Skin sensitization, Category 1
Specific target organ toxicity – single exposure, Category 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger
Hazard statement(s)
H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H335 May cause respiratory irritation

Precautionary statement(s)
Prevention
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.

Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P333+P317 If skin irritation or rash occurs: Get medical help. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Methyl Methacrylate	Methyl methacrylate	80-62-6	201-297-1	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Irritation of eyes, nose, and throat. Nausea and vomiting. Liquid may cause skin irritation. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Esters and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide, or foam extinguishers. Vapors are heavier than air and will collect in low areas. Vapors may travel long distances to ignition sources and flashback. Vapors in confined areas may explode when exposed to fire. Containers may explode in fire. Storage containers and parts of containers may rocket great distances, in many directions. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors or shows any signs of deforming), withdraw immediately to a secure position.

5.2 Specific hazards arising from the chemical

Behavior in Fire: Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. Containers may explode in fire or when heated because of polymerization. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Remove all ignition sources. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Remove all ignition sources. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants, strong bases and strong acids. Cool. Keep in the dark. Keep in a well-ventilated room. Store only if stabilized.Before entering confined space where this chemical may be present, check to make sure that an explosive concentration does not exist. Methyl methacrylate must be stored to avoid contact with oxidizers, such as nitrates, permanganates, perchlorates, chlorates, and peroxides; strong alkalis, such as sodium hydroxide and potassium hydroxide, and strong acids, such as nitric acid, hydrochloric acid, and sulfuric acid, since violent reactions occur. Store in tightly closed containers in a cool, well ventilated area away from light, heat, and ionizing radiation, because methyl methacrylate will react and release heat quickly causing an explosion. Store with an appropriate inhibitor. Lack of an appropriate inhibitor may cause an explosive reaction.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 50 ppm as TWA; 100 ppm as STEL; (SEN); A4 (not classifiable as a human carcinogen).MAK: 210 mg/m3, 50 ppm; peak limitation category: I(2); sensitization of skin (SH); pregnancy risk group: C.EU-OEL: 50 ppm as TWA; 100 ppm as STEL

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Methyl methacrylate monomer is a clear colorless liquid. Slightly soluble in water and floats on water. Vapors heavier than air. Vapors irritate the eyes and respiratory system. Containers must be heavily insulated or shipped under refrigeration. An inhibitor such as hydroquinone, hydroquinone methyl ester and dimethyl t-butylphenol is added to keep the chemical from initiating polymerization. The chemical may polymerize exothermically if heated or contaminated with strong acid or base. If the polymerization takes place inside a container, the container may rupture violently. Used to make plastics.
Colour	Colorless volatile liquid
Odour	Characteristic quality: sulfur-like, sweet, sharp; hedonic tone: unpleasant

Melting point/freezing point	162°C(lit.)
Boiling point or initial boiling point and boiling range	100°C
Flammability	Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Lower and upper explosion limit/flammability limit	Lower 1.7%; Upper 8.2% (by volume)
Flash point	9°C(lit.)
Auto-ignition temperature	790° F (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	1 to 10 mg/mL at 63.5° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 1.38
Vapour pressure	40 mm Hg at 77.9° F (NTP, 1992)
Density and/or relative density	0.943
Relative vapour density	3.45 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance may polymerize due to warming or due to heating, under the influence of light, polymerization catalysts and strong oxidants. This generates fire or explosion hazard. Reacts with strong acids and strong bases.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

A very dangerous fire hazard when exposed to heat or flame ...The vapour mixes well with air, explosive mixtures are easily formed. Vapours are uninhibited and may polymerize, causing blockage of vents.METHYL METHACRYLATE MONOMER, may polymerize if contaminated or subjected to heat. If polymerization takes place in a container, the container is subject to violent rupture. Oxidizes readily in air to form unstable peroxides that may explode spontaneously [Bretherick 1979. p.151-154, 164]. Peroxides may also initiate exothermic polymierization of the bulk material [Bretherick 1979. p. 160]. Benzoyl peroxide was weighed into a beaker that had previously been rinsed with methyl methacrylate. The peroxide catalyzed polymerization of the methyl methacrylate and the build-up of heat ignited the remaining peroxide [MCA Case History 996. 1964].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Can react with oxidizing materials.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 9400 mg/kg.
- Inhalation: LC50 Rat inhalation 11,250 - 12,500 ppm/2 hr
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence in humans for the carcinogenicity of methyl methacrylate. There is evidence suggesting lack of carcinogenicity of methyl methacrylate in experimental animals. Overall evaluation: Methyl methacrylate is not classifiable as to its carcinogenicity to humans (Group3).

Reproductive toxicity

No adequate reproductive or developmental studies in humans are available. Inhalation exposure of rats to maternally-toxic levels of methyl methacrylate resulted in fetal abnormalities (hematomas and skeletal anomalies) and decreased fetal weight and crown-rump length.

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization. The substance may have effects on the peripheral nervous system.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill, juvenile, length 3.65 cm, weight 0.90 g); Conditions: freshwater, flow through, 22 deg C, pH 6-8, dissolved oxygen >7.5 mg/L; Concentration: 420 mg/L for 1 hr /practical grade
- Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea, age < or =24 hr); Conditions: freshwater, static, 20-22 deg C, pH 7.6-7.7; Concentration: 1760 mg/L for 24 hr /formulation
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Methyl methacrylate, present at 100 mg/L, reached 94% of its theoretical BOD in 2 weeks using an activated sludge inoculum in the Japanese MITI test(1). In the modified Japanese MITI test, methyl methacrylate reached 32% of its theoretical BOD after 28 days; in a closed bottle test, methyl methacrylate released 88% of carbon dioxide evolution after 28 days; and >95% methyl methacrylate was degraded in the Zahn-Wellens test, time not specified(2). Methyl methacrylate was reported to be completely degraded by activated sludge in approximately 20 hours(3). In a standard biodegradability test using sewage seed, 42% of the theoretical BOD was consumed in 19 days, including a 3-4 day lag period; with acclimated seed, 66% of the theoretical BOD was consumed in 22 days(4). The biodegradation rate for methyl methacrylate at 75 ppm starting concentration, treated using a mixed microbial population immobilized in calcium alginate gel, was 9.3 ppm/hr; this corresponded to 89% removal due to biodegradation(5).

12.3 Bioaccumulative potential

An estimated BCF of 4 was calculated in fish for methyl methacrylate(SRC), using a log Kow of 1.38(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of methyl methacrylate has been measured as 9-72(1) and as high as 95(2). According to a classification scheme(3), this Koc range suggests that methyl methacrylate is expected to have very high to high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1247 (For reference only, please check.)	IMDG: UN1247 (For reference only, please check.)	IATA: UN1247 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: METHYL METHACRYLATE MONOMER, STABILIZED (For reference only, please check.)	IMDG: METHYL METHACRYLATE MONOMER, STABILIZED (For reference only, please check.)	IATA: METHYL METHACRYLATE MONOMER, STABILIZED (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Methyl methacrylate	Methyl methacrylate	80-62-6	201-297-1
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 23, 2023

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Usually contains hydroquinone, hydroquinone methyl ether and dimethyl t-butylphenol as inhibitors of polymerization.An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.Do NOT take working clothes home.

Any questions regarding this SDS, Please send your inquiry to export@greenrockchem.com

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